These are a Few of Our Favorite Things – Current Thoughts on Design and Innovations in Consumer Research

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Disclaimer
Views expressed are those of the speaker and may not represent positions of FDA, the Center for Drug Evaluation and Research, the Office of New Drugs, or the Division of Nonprescription Drug Products. Title reference with apologies to Rogers, Hammerstein, Mary Martin, John Coltrane, Julie Andrews, The Supremes, Herb Alpert, Carrie Underwood, Kelly Clarkson, and various others.
OTC Application Consumer Studies: Observations about Design

Refresher

- Means to demonstrate that consumers can use the drug product in a safe and effective manner
- Overall goals
  - the label effectively communicates risk and safe use
  - consumers make the right choice about their use of the product based on the label
  - safe use of the product under normal conditions of use
  - use of a product (device) based on instructions
OTC Consumer Studies

**Label Comprehension Study**
- Understanding the key label messages

**Self-Selection Study**
- Making the right choice about the product

**Actual Use Study**
- Using according to labeled directions

**Human Factors Study**
- Interacting with the product

Label Comprehension – Typical Design

- Open-label, uncontrolled tests; not trials
- Assess content, access, and comprehension
- Establish primary communications objectives based on key labeling elements
- Present scenario questions that address these communications objectives
- Set *a priori* target thresholds that reflect medical consequence/risk considerations
  - Target thresholds for pivotal study are a pre-specified proportion reflecting clinical rationale
  - Outcomes are not viewed the same as traditional clinical trial success thresholds
<table>
<thead>
<tr>
<th>Outcome Hierarchy</th>
<th>Message</th>
<th>Scenario Question</th>
<th>All Combined (n=542)</th>
<th>Literacy ≥ 60 (n=416)</th>
<th>Low Literacy (n=126)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary</td>
<td>Dangerous DDI with a class of drugs — it is an absolute contraindication</td>
<td>Bob takes (a type of contraindicated drug) and wants to use (your product). What does the label say he should do?</td>
<td>82% (78%, 85%)</td>
<td>88% (84%, 91%)</td>
<td>63% (54%, 71%)</td>
</tr>
</tbody>
</table>

Typical LCS Design and Analyses

Cohort 1 – Emphasis on threshold

- Convenience sample
  - NL
  - LL

Cohort 2 – Insights into LL

- Purposely Augmented LL
  - NL
  - LL
Our Favorite Things

- Representativeness of health literacy
- Iterative testing; pilots
- Open-ended response framing
- Unique testing of elements in composite messages (e.g., pregnancy and breastfeeding)
- Recognizing sequential nature of studies beginning with LCS
- Significance of key safety and use messages across the suite of studies
- Your willingness to test novel items and re-test significant warnings and instructions in the context of new labels

Self-Selection—Typical Design

- A higher-stakes label comprehension test
- Individual endpoint is the consumer’s determination if use of the drug is appropriate for them based on label considerations, evaluated as correct or incorrect
- After reading the label, the consumer is asked if the product is right for them. This is usually followed by a probe asking why or why not.
Self-Selection Test

• Success of a drug application can depend on ability of consumers to self-select

• High importance for first-in-class applications in OTC drug world

Self-Selection Design (cont.)

• “All comers” sampling—generally like label comprehension—but targeted groups or population may be appropriate for ‘enrichment’

• Outcome of interest is the proportion with appropriate self-selection (OFTEN “deselection”—making an appropriate choice to not use the product)

• Additional information needed (e.g., medical history, list of current medications) to determine accuracy of choice
### Getting the Outcomes Right

**Appropriateness of product for consumer based on labeled safety and use information, considering consumer’s characteristics**

<table>
<thead>
<tr>
<th>Consumer’s Selection</th>
<th>Appropriate</th>
<th>Inappropriate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes, OK for me</td>
<td>A (TP)</td>
<td>B (FP)</td>
</tr>
<tr>
<td>No, not OK</td>
<td>C (FN)</td>
<td>D (TN)</td>
</tr>
</tbody>
</table>
Our Favorite Things

- Asking the right question, leading to the right outcomes (with justified thresholds)
- An optimal sample (with representative health literacy)
- Dichotomous framing with open-ended justification
- Significant safety and use messages embedded in the selection decision, especially contraindications
- Separate SSS and AUS studies, particularly when the goals differ widely and self-selection is high stakes

The Actual Use Study

Larson—fair use
Actual Use Studies — Typical Design

• Categorized as consumer studies, they are by definition clinical studies involving a drug
• Most often a self-reported, open-label of study of safe use
• Data collection relies on diary methods
• Individual outcomes most often instances of inappropriate use while measures of interest may be rates or proportions of misuse
• Recent requests for application of behavioral trials—move from observational cohort to RCT

Our Favorite Things

• “Enriched” samples guaranteeing regular use during study (representativeness including health literacy)
• Justified, negotiated endpoints with pre-specified thresholds
• Electronic diaries
• Ongoing recording of significant safety concerns (esp. concomitant medications)
• Follow-through on key safety and use messages tested earlier in LCS and SSS outcomes
One More Very Favorite Thing…

- Exploration of consumers’ explanations of why failures (usually misuse) occur

Applicable both to self-selection and actual use, this is a key way we can keep discussion open for finding a path forward!

Methods, Materials, and Data

- Recruitment materials
- Screening scripts
- Transparent information on “mitigations”
- Inclusion of “verbatim” information in datasets
- Preliminary sample datasets for feedback on the dataset structure
Consumer Studies and Regulatory Science:

Thursday and Beyond

Innovative and Diverse Methods for Understanding Consumer Behavior

- Shiffman, Bix and Richardson presentations were indeed innovative and diverse
- The application of diverse methodologies for triangulating on any number of questions is promising
- Application of mixed methods in new and creative ways will advance our understanding
- Won’t for the moment substitute what we ask for, but we welcome studies to the extent they inform regulatory concerns
Consumer Navigation
and Selection Behaviors Study

- Very informative marketing survey by Aker and colleagues for CHPA
- Focus on key role of brand in identification and trust
- Internet survey (N=204)
- Results
  - brands useful in navigation
  - hierarchy of choice: symptoms, brand, price
  - perception of effectiveness as core of repeated brand use
- Findings not having impact for regulatory concerns, as they address marketing questions

Internet Surveys in General

- Potentially useful adjuncts—not a replacement for—the usual consumer studies
  - Assuming they ask questions of regulatory concern
  - Assuming sampling is transparent and sufficiently representative for findings to have meaning
- Potentially informative tool for surveys about safe use and a range of relevant issues
Internet Surveys (cont.)

- Well-recognized limitations or challenges
  - Selection bias due to volunteer sampling and digital divides
  - Pre-coded responses where open-ended responses may be desirable
  - Greater chance for respondent misrepresentation (e.g., age)
- Exploratory and descriptive studies with informative content that we would not typically evaluate

Table 1. Comparison of study respondents with U.S. Census

<table>
<thead>
<tr>
<th>Age (median)</th>
<th>Total initial recruits (n=18,533)</th>
<th>Final sample (n=5,649)</th>
<th>U.S. Census (2009 projections)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
</tr>
<tr>
<td>Male</td>
<td>8057</td>
<td>44</td>
<td>2481</td>
</tr>
<tr>
<td>White race</td>
<td>14,465</td>
<td>78</td>
<td>4613</td>
</tr>
<tr>
<td>Education</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;12 years</td>
<td>389</td>
<td>2</td>
<td>139</td>
</tr>
<tr>
<td>High school</td>
<td>2110</td>
<td>12</td>
<td>877</td>
</tr>
<tr>
<td>Some college</td>
<td>5256</td>
<td>31</td>
<td>2001</td>
</tr>
<tr>
<td>College grad.</td>
<td>6572</td>
<td>36</td>
<td>2610</td>
</tr>
<tr>
<td>Income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt;$20,000</td>
<td>4537</td>
<td>27</td>
<td>1412</td>
</tr>
<tr>
<td>$20,000-49,999</td>
<td>3762</td>
<td>22</td>
<td>1215</td>
</tr>
<tr>
<td>$50,000-74,999</td>
<td>2736</td>
<td>16</td>
<td>826</td>
</tr>
<tr>
<td>$75,000-99,999</td>
<td>6563</td>
<td>35</td>
<td>2066</td>
</tr>
<tr>
<td>≥$100,000</td>
<td>3898</td>
<td>21</td>
<td>1048</td>
</tr>
</tbody>
</table>

Eye-Tracking in General

- Broad appreciation of objectivity of technique
- Makes clear if information can be “seen”—objective measure of early processing and visual salience
- But basic concerns about inference
  - Duration or movement of gaze ≠ perception
  - Perception ≠ cognition
  - Cognition ≠ behavior
- Intelligent use within a broader menu of research methods seems best
With FDA Input From

- Barbara Cohen
- Jane Filie
- Charles Ganley
- Karen Higgins
- Mona Khurana
- Scott Komo
- Theresa Michele
- Ryan Rafaelli

- And past FDA experts on consumer studies